



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/580,538

05/25/2006

Klaus Endres

P29904

3204

7055

7590

03/23/2009

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

VO, HAI

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

03/23/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/580,538 | Applicant(s) ENDRES ET AL. | |
| | Examiner Hai Vo | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 77-123 is/are pending in the application.
- 4a) Of the above claim(s) 93 and 106 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 77-92, 94-105 and 107-123 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

1. Newly submitted claims 93 and 106 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: These claims are directed to the non-elected pore former species.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 93 and 106 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

2. All of the art rejections are maintained. In addition, new grounds of rejections are made in view of newly discovered references to Sheldon et al (US 5,203,886) and Osborne et al (US 5,811,171).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 77-92, 94-97, 110, and 122 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The addition of the zirconium silicate or mullite is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The addition of the

Art Unit: 1794

zirconium silicate or mullite is necessary to cause the insulation material having a softening point above 1200°C.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 77-92, 94-97, 110, and 122 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims setting forth a softening point above 1200°C and not setting forth addition of mullite or zirconium silicate to cause such characteristics are invalid as vague and indefinite. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete (Note discussion found in ***Ex parte Slob***, 157 USPQ 172). Kudas et al (US 2003/0175411) and Farnworth et al (US 7,153,754) are relied on as the evidence of the record indicating that the precursor composition meets all the structural limitations set forth in the claims but does not have the softening point as presently claimed. Lack of mullite and/or zirconium silicate which is necessary to attain the softening point above 1200°C renders the claims indefinite.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1794

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 109, and 111-121 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kodas et al (US 2003/0175411). Kodas teaches a precursor composition made from a molecular precursor, metal oxide nanoparticles and hollow microspheres (paragraphs 29, 34, 70, 187, 345, and 346). The binder is the precursor (paragraph 316). The precursor includes an electrically conductive polymer, thermoplastic polymer and at least one refractory component (paragraphs 80, 127, 182-186 and 344). Styrene allyl alcohol can be added to reduce the composition spreading on the substrate (paragraph 136). The precursor composition has a porosity of not greater than 25% (paragraph 400). The composition is applied to a substrate and cured (paragraph 295). Kodas does not specifically disclose the relative

Art Unit: 1794

pore size of the additional pores and the pores of the porous matrix. However, Kodas uses the same materials for the nanoparticles and microspheres as Applicants, the nanoparticles and microspheres having the particle sizes within the ranges disclosed in the present specification. Kodas teaches the microspheres having an average particle size of 2 microns (paragraph 55), the nanoparticles having an average particle size of 25 to 75 nm (paragraph 29). The examiner notes that the pore size of the porous matrix is dictated by the particle size of the nanoparticles. Similarly, the pore size of additional pores generated by microspheres is determined by the particle size of the microspheres. Therefore, it is the examiner's position that the relative pore size set out in the claim would be inherently present as like material has like property. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties.

"The insulation is present as a part of a refrigerator" is nothing more than an intended use limitation. It has been held that a recitation with respect to the manner in which a claimed insulation material is intended to be employed does not differentiate the claimed insulation material from a prior art precursor composition satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Kodas does not specifically disclose the precursor composition is in a form of a molded body. However, it is a product-by-process limitation not as yet

Art Unit: 1794

shown to produce a patentably distinct article. It is the examiner's position that the article of Kodas is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Kodas. Accordingly, Kodas anticipates or strongly suggests the claimed subject matter.

10. Claims 109, 114 and 121 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Farnworth et al (US 7,153,754). Farnworth teaches a porous insulative material made from a silica aerogel and hollow microspheres (column 5, lines 30-35, column 8, lines 48-50). The insulative material has a porosity ranging from 70 to 99% (column 9, lines

Art Unit: 1794

54-55). The binder is the precursor (column 9, lines 50-55). The composition is applied to a substrate and cured (figure 1C). The insulative material is a combination of a polymer and a silica aerogel (column 5, lines 30-35). The sol-gel solution is silicone oxide or a metalloid alkoxide (column 9, lines 20-50). Farnworth teaches the nanoparticles having an average particle size of 2 to 10 nm (column 9, lines 54-55). The examiner notes that the pore size of the porous matrix is dictated by the particle size of the nanoparticles. Therefore, it is the examiner's position that the pore size of the porous matrix set out in the claim would be inherently present as like material has like property.

"The insulation is present as a part of a refrigerator" is nothing more than an intended use limitation. It has been held that a recitation with respect to the manner in which a claimed insulation material is intended to be employed does not differentiate the claimed insulation material from a prior art precursor composition satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Farnworth does not specifically disclose the precursor composition is in a form of a molded body. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Farnworth is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity. Even though product-by-process claims are limited by and defined by the process, determination of

Art Unit: 1794

patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Farnworth. Accordingly, Farnworth anticipates or strongly suggests the claimed subject matter.

11. Claims 111-113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farnworth et al (US 7,153,754) as applied to claim 109 above, and further in view of Kudas et al (US 2003/0175411). Farnworth does not specifically disclose the particle size of the hollow microspheres. Kudas teaches a precursor composition made from a molecular precursor, metal oxide nanoparticles and and hollow microspheres (paragraphs 29, 34, 70, 187, 345, and 346). The binder is the precursor (paragraph 316). Kudas teaches the microspheres having an average particle size of 2 microns (paragraph 55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use

Art Unit: 1794

the microspheres with an average particle size as taught by Kodas because such is a typical particle size of the microspheres and Kodas provides necessary details to practice the invention of Farnworth. It appears that the combined teachings of Farnworth and Kodas suggest the use of nanoparticles and microspheres which have the particle sizes within the ranges disclosed in the present specification.

The nanoparticles having an average particle size of 2 to 10 nm (Farnworth, column 9, lines 54-55). Kodas teaches the microspheres having an average particle size of 2 microns (paragraph 55). The examiner notes that the pore size of the porous matrix is dictated by the particle size of the nanoparticles.

Similarly, the pore size of additional pores generated by microspheres is determined by the particle size of the microspheres. Therefore, it is the examiner's position that the relative pore size set out in the claim would be inherently present as like material has like property.

12. Claims 77-79, 86, 90, 95, 96, 98, 102, 108-110, 114, 117, and 121-123 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sheldon et al (US 5,203,886). Sheldon teaches a porous molded product made from sol gel aluminous grits, vitreous bond, hollow spheres of alumina and a sacrificial organic material (abstract, column 6, lines 40-42). The product further includes mullite (column 3, lines 35-36, column 4, lines 25-30). Sheldon discloses about 50 to 70% of the bulk volume of the alumina hollow spheres is porous in the product (column 4, lines 65-68). The

Art Unit: 1794

product has a porosity of 60% (table II-continued). Accordingly, Sheldon anticipates or strongly suggests the claimed subject matter.

13. Claims 77-92, 94-105, and 107-123 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Osborne et al (US 5,811,171). Osborne teaches a porous molded ceramic product made from an aqueous slurry of a silica sol, calcium silicate and zirconium silicate (column 1, lines 35-40, and column 2, lines 27-28). The product further includes carbon fibers to add the strength to the structure (column 2, lines 37-38). The sol of silica has an average particle size of less than 30 nm (column 4, lines 40-43). The ceramic product further includes polystyrene, sawdust which is burnt out during the subsequent heat treatment (column 2, lines 30-35). The product is between 25% and 85% dense (column 4, lines 50-55). Likewise, the product has a porosity ranging from 15% to 75%. Two or more ceramic products are joined together (column 3, lines 55-60). It appears that the porous ceramic product meets all the structural limitations and chemistry as required by the claims; therefore, it is not seen that the ceramic product would not have the softening point within the claimed range as like material has like property. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties.

The examiner notes that the pore size of the porous matrix is dictated by the particle size of the nanoparticles. Similarly, the pore size of additional pores

Art Unit: 1794

is determined by the particle size of the polystyrene particles. Sargeant et al (US 4,307,051) will be relied on as evidence to show a state of fact that as a pore forming agent, the polystyrene particle is in the form of a hollow particle having an average particle size ranging from 0.5 to 3 mm (column 1, lines 55-60).

Therefore, it is the examiner's position that the relative pore size set out in the claim would be inherently present as like material has like property. Accordingly, Osburne anticipates or strongly suggests the claimed subject matter.

Response to Arguments

14. Applicants contend that neither Kodas nor Farnworth teach or suggest the matrix of the thermal insulation material having a softening point above 1200°C.

However, nothing in independent claims 109 and 121 is specific about that limitation. It is noted that the applied references are silent as to the production of moldings. However, as previously discussed, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Kodas or Farnworth is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity.

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product

Art Unit: 1794

was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Kodas or Farnworth.

“The insulation is present as a part of a refrigerator” is nothing more than an intended use limitation. It has been held that a recitation with respect to the manner in which a claimed insulation material is intended to be employed does not differentiate the claimed insulation material from a prior art precursor composition satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Accordingly, the art rejections are sustained.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

Art Unit: 1794

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hai Vo/
Primary Examiner, Art Unit 1794